National Institute of Environmental Health Sciences

Changes in malaria morbidity and mortality in Mpumalanga Province, South Africa (2001-2009): A retrospective study

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Abstract:

BACKGROUND: Malaria remains a serious epidemic threat in Mpumalanga Province. In order to appropriately target interventions to achieve substantial reduction in the burden of malaria and ultimately eliminate the disease, there is a need to track progress of malaria control efforts by assessing the time trends and evaluating the impact of current control interventions. This study aimed to assess the changes in the burden of malaria in Mpumalanga Province during the past eight malaria seasons (2001/02 to 2008/09) and whether indoor residual spraying (IRS) and climate variability had an effect on these changes. METHODS: This is a descriptive retrospective study based on the analysis of secondary malaria surveillance data (cases and deaths) in Mpumalanga Province. Data were extracted from the Integrated Malaria Information System. Time series model (Autoregressive Integrated Moving Average) was used to assess the association between climate and malaria. RESULTS: Within the study period, a total of 35,191 cases and 164 deaths due to malaria were notified in Mpumalanga Province. There was a significant decrease in the incidence of malaria from 385 in 2001/02 to 50 cases per 100,000 population in 2008/09 (P < 0.005). The incidence and case fatality (CFR) rates for the study period were 134 cases per 100,000 and 0.54%, respectively. Mortality due to malaria was lower in infants and children (CFR < 0.5%) and higher in those >65 years, with the mean CFR of 2.1% as compared to the national target of 0.5%. A distinct seasonal transmission pattern was found to be significantly related to changes in rainfall patterns (P Euro Surveillance (Bulletin Europeen Sur Les Maladies Transmissibles; European Communicable Disease Bulletin) 0.007). A notable decline in malaria case notification was observed following apparent scale-up of IRS coverage from 2006/07 to 2008/09 malaria seasons. CONCLUSIONS: Mpumalanga Province has achieved the goal of reducing malaria morbidity and mortality by over 70%, partly as a result of scale-up of IRS intervention in combination with other control strategies. These results highlight the need to continue with IRS together with other control strategies until interruption in local malaria transmission is completely achieved. However, the goal to eliminate malaria as a public health problem requires efforts to be directed towards the control of imported malaria cases; development of strategies to interrupt local transmission; and maintaining high quality surveillance and reporting system.

Source: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3292497

Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Indoor Environment, Meteorological Factors, Precipitation, Temperature

Temperature: Fluctuations

Geographic Feature: ☑

resource focuses on specific type of geography

None or Unspecified

Geographic Location: ☑

resource focuses on specific location

Non-United States

Non-United States: Africa

African Region/Country: African Country

Other African Country: South Africa

Health Impact: ☑

specification of health effect or disease related to climate change exposure

Infectious Disease, Morbidity/Mortality

Infectious Disease: Vectorborne Disease

Vectorborne Disease: Mosquito-borne Disease

Mosquito-borne Disease: Malaria

Intervention: ☑

strategy to prepare for or reduce the impact of climate change on health

A focus of content

Population of Concern: A focus of content

Population of Concern: ☑

populations at particular risk or vulnerability to climate change impacts

Children, Elderly

Resource Type: ☑

format or standard characteristic of resource

Research Article

Timescale: ☑

time period studied

Time Scale Unspecified